

Remarks

This is intended as a full and complete response to the Office Action dated July 6, 2004, having a shortened statutory period for response set to expire on October 6, 2004. Please reconsider the claims pending in the application for reasons discussed below.

Claims 1-35 remain pending in the application and are shown above. Claims 1-3, 5, 8-11, 13, 16-22, and 27-34 stand rejected and claims 4, 6, 7, 12, 14, 15, 23 – 26 are indicated to be allowable by the Examiner. Claims 1, 9 and 17 have been amended. No new matter has been added. Applicant respectfully requests reconsideration of the rejected claims for reasons presented below.

Claim Rejections Under 35 U.S.C. § 103

Claims 1-3, 5, 8-11, 13, 16-22, and 27-34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over *Solomon* (U.S. Patent 5,030,828) in view of *Thomas, et al.* (U.S. Patent 4,369,458). The Examiner states that *Solomon* discloses a method of fabricating a radiation detector array comprising the steps of: a) providing on one face of a layer of material, an array of detector elements 28 (col. 6, lines 8-14), and b) forming an array of cavities 13, 36 in the layer of material such that each detector is positioned at the base of a cavity (FIG. 1). The Examiner further states that *Solomon* does not teach the step of bonding the array of cavities and detectors to a silicon integrated circuit, but *Thomas, et al.* teaches a method of making a radiation array having the steps of bonding (col. 2, lines 33-50) the array cavities 30, 32, 34 and detectors 28, 26, 38, 40, 58 to a silicon IC including the array of amplifiers and multiplex switches (FIGs. 2, 3).

Applicant respectfully traverses this rejection. *Solomon* discloses an array of cavities, wherein the entire wall and floor of each cavity 13 has a body of detector material formed as a layer thereon (col. 4, lines 43-45). The cavity comprises a floor which tends to either reflect incident photons deeper into the cavity and onto another section of the floor or which tends to reflect incident photons onto the walls of the cavity

(col. 5, lines 28-32). *Solomon* further discloses an electrical contact, not a detector, below each cavity (col. 4 lines 60-62).

For the reasons stated above, combining the array of cavities of *Solomon* with the bonding step of *Thomas* would not provide an array of detectors bonded to a silicon integrated circuit as referenced in independent claims 1, 9 and 17. However, in order to further clarify aspects of the invention, Applicant has amended independent claims 1, 9 and 17. *Solomon* and *Thomas*, either alone or in combination, do not teach, show or suggest forming an array of cavities in the layer of material such that each detector is positioned at the base only of a cavity, the cavities having reflective walls for reflecting radiation onto the detectors, and bonding the array of cavities and detectors to a silicon integrated circuit including a corresponding array of amplifiers and multiplex switches, as recited in independent claim 1.

Additionally, *Solomon* and *Thomas*, either alone or in combination, do not teach, show or suggest providing, on one face of the material, an array of detector elements, each including a material which absorbs the radiation, such that one element is positioned at the base only of each cavity, and bonding the array of cavities and detectors to a silicon integrated circuit including a corresponding array of amplifiers and multiplex switches, as recited in independent claim 9.

Further, *Solomon* and *Thomas*, either alone or in combination, do not teach, show or suggest a radiation detector array comprising an array of radiation collector cavities formed in a layer of material, the cavities having walls which reflect the radiation; and an array of detector elements on one face of the layer of material arranged with an element at the base only of each cavity, the elements including a material which absorbs the radiation, wherein the array of cavities and detectors is bonded to a silicon integrated circuit including a corresponding array of amplifiers and multiplex switches, as recited in independent claim 17.

Therefore, for the reasons stated above, Applicant respectfully requests allowance of independent claims 1, 9 and 17 and all of their dependent claims (2-8, 10-16 and 18-35).

Allowable Subject Matter

Claims 4, 6-7, 12, 14-15, and 23-26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Applicant acknowledges the allowable subject matter. However, claims 4, 6-7, 12, 14-15, and 23-26 have not been rewritten at this time because Applicant believes the base claims (1, 9 and 17) of the allowable claims are allowable for the reasons stated above.

In conclusion, the references cited by the Examiner, alone or in combination, do not teach, show, or suggest the invention as claimed.

The secondary references made of record are noted. However, it is believed that the secondary references are no more pertinent to the Applicant's disclosure than the primary references cited in the office action. Therefore, Applicant believes that a detailed discussion of the secondary references is not necessary for a full and complete response to this office action.

Having addressed all issues set out in the office action, Applicant respectfully submits that the claims are in condition for allowance and respectfully request that the claims be allowed.

Respectfully submitted,



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